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PROPOSAL FOR
MMMS IMPLEMENTATION
CITY OF HAMILTON

The
Thorne
Group
Ltd.

MANAGEMENT CONSULTANTS

The Corporation of the City of Hamilton

DEPARTMENT OF FINANCE

AND ADMINISTRATION

HAMILTON, ONTARIO

4440117000

PROPOSAL FOR

MMMS IMPLEMENTATION

CITY OF HAMILTON

TO: Mr. A. A. Wilson

FROM: Management Consultants Group - Toronto

Following are the names, date and time for presentation by the Consultant Firms at their first presentation:

Firm	Date and Time
Ray Thompson Associates	January 11 - 11:00 A.M.
Lawrence & Young Ltd.	January 11 - 1:00 P.M.
Woods, Wether & Company	January 11 - 2:00 P.M.
De Thorne Group Ltd.	January 11 - 3:00 P.M.
Charles Gault & Partners	January 11 - 4:00 P.M.

It is indicated by members of the above firms that on that date they will be available for their presentation.

JANUARY, 1975

THE THORNE GROUP LTD.
MANAGEMENT CONSULTANTS



OUR FILE NO. 75-1090
ATTENTION OF: R.A.Morden

THE CORPORATION OF THE CITY OF HAMILTON

COMMISSIONER OF STREETS
AND SANITATION

HAMILTON, ONTARIO

MEMORANDUM

January 29th, 1975.

TO: Mr. J. Rallo
FROM: Mr. R. A. Morden
SUBJECT: Maintenance Management System - Proposals

Following please find names, date and times for presentation by the Consultant Firms, of their final proposals:-

<u>Firm</u>	<u>Date and Time</u>
Roy Jorgensen Associates	January 31 - 11.00 A.M.
Stevenson & Kellogg Ltd.	January 31 - 1.00 P.M.
Woods, Gordon & Company	January 31 - 2.00 P.M.
The Thorne Group Ltd.	January 31 - 3.00 P.M.
Urwick, Currie & Partners	January 31 - 4.00 P.M.

It was indicated by members of the above firms that an hour should be ample time for their presentation.

RM/bs

The Thorne Group Ltd.

Management Consultants

January 3, 1975.

Mr. R.A. Morden
Director of Street Services
City of Hamilton
City Hall
Hamilton, Ontario
L8N 3T4

Dear Mr. Morden:

We welcome the opportunity of submitting this proposal to provide consulting services to assist the City of Hamilton in the introduction of the Municipal Maintenance Management System (MMMS) into their street services department. This proposal is based on your specific requirements in introducing the MMMS as discussed with yourself, and our experience in conducting similar assignments. We have outlined below our approach to the implementation program and the timing, staffing and fees associated with this proposal.

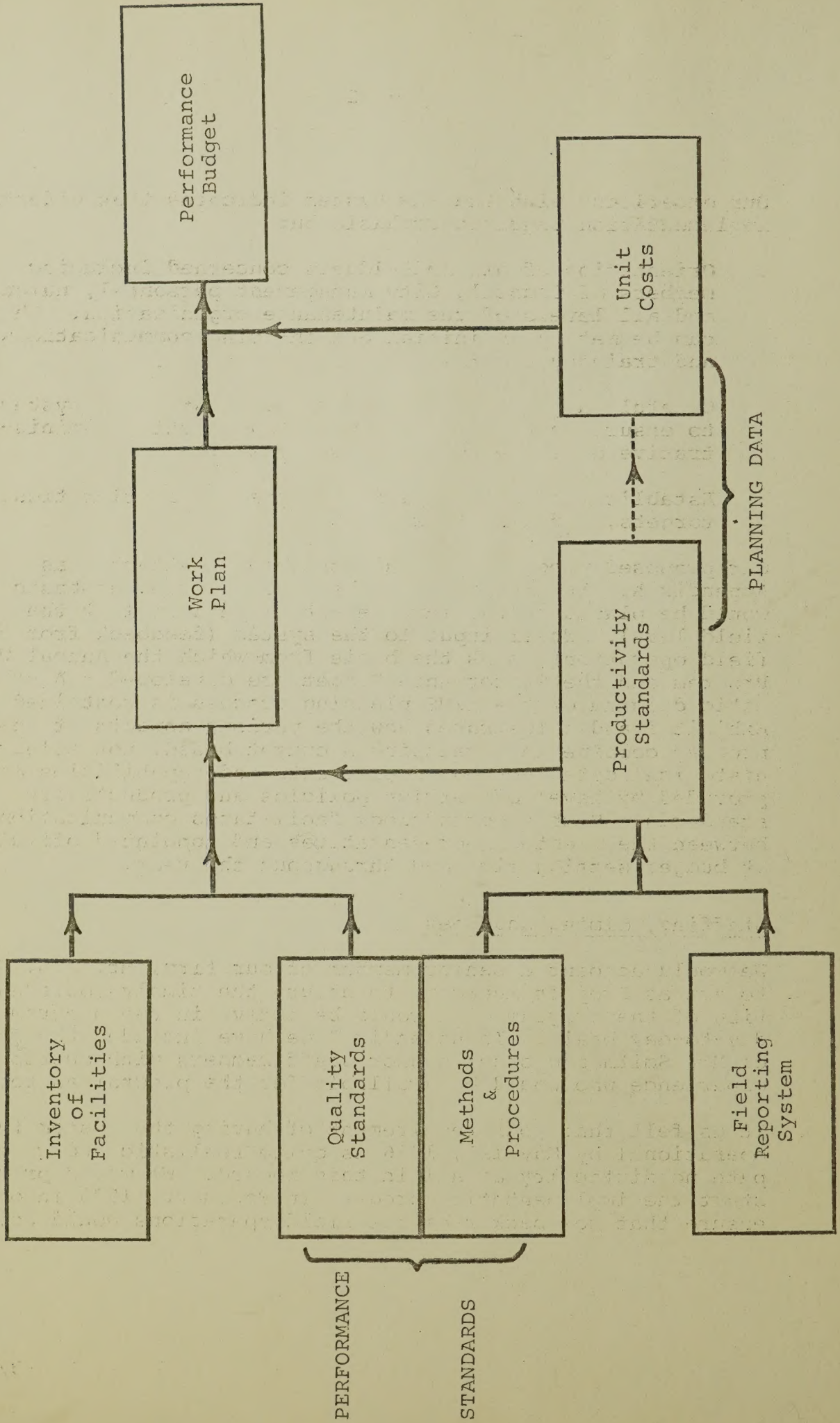
Program Approach and Organization

It is our constant aim to provide practical solutions for our clients which are tailored to their particular operations and organizational environment. This approach has proven essential to successfully implementing the MMMS. We have recommended new techniques and innovations where applicable, feasible and conducive to improvements.

The Municipal Maintenance Management System is a management technique or tool to plan and control maintenance operations. We feel it is a logical and rational approach to the problems of maintenance. The basic objective of the MMMS is to assist both the elected representatives and the appointed officials to plan and control maintenance work so that the established level of service is effectively and economically provided to the citizens of Hamilton.

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SCHEMATIC - MMMS PLANNING PROCESS



Our experience with the MMM System indicates that effective implementation requires emphasis on:

- . Orientation of all individuals concerned including members of Council, City management personnel, unions, and all levels of the maintenance organization. This can be met by an initial and on-going communications and training program.
- . Careful adaptation of the MMMS administrative system to ensure that it fits in with the existing administrative organization and its systems.
- . Establishment of realistic and practical priorities, targets, and schedules.

Our proposed program plan and schedule is attached as Appendix A. In implementing the MMMS program, emphasis would be placed on the involvement of personnel at the field level. Their input to the system (feedback from the field operation) forms the basis from which the Annual Work Program and the Performance Budget are developed. A schematic diagram of the MMMS planning process is contained in Exhibit 1 and illustrates how the various aspects of the program combine in developing a budget based, not solely on historical data, but on requirements and capabilities as provided by level of service policies and productivity standards. Such a methodology facilitates communications between the elected representatives and appointed officials at budget setting time and throughout the year.

Staffing, Timing and Fees

We would appoint a senior member of our firm, Mr. J.L. Smith, to act as Project Manager, to ensure the timely implementation of the program. He would be active in the program on a day-to-day basis. In Appendix B we have included the resumes of Mr. Smith and other senior staff members with appropriate experience who would be available for the program as required.

It is felt that your requirement of having the system fully operational by May 1st, 1976 is quite realistic and we anticipate no difficulty at all in this regard. We would propose to start the implementation program in February, 1975 in order to ensure that feedback from the field operations would commence

as early as practical. In this way data from a full summer period would be available when preparing the 1976 budget. It has been our experience that productivity values and unit costs are only meaningful when based on your own operating experience.

Based on starting in February, 1975, the elapsed time of the project would be 21 months. (February, 1975 to April, 1976 plus 6 months monitoring) which is considerably greater than the consultant time required by the Project Manager. His actual time on site in any period will vary with the phase of the program, but will be nearly 100% in the initial period and during the commencement of winter and summer programs.

We estimate that the total professional fees and expenses for this program would not be more than \$43,200 which would be considered an upset limit. In addition we would provide, at your option, drafting, duplication, and secretarial services at an estimated cost of \$2,000. The accompanying table shows the breakdown of the fees and expenses.

ESTIMATED FEES & EXPENSES

Consulting Fees (estimated 140 man-days)	\$ 39,200
Expenses - (travelling, meals, misc.)	4,000
TOTAL FEES & EXPENSES	\$ 43,200
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Note: Additional cost of providing, drafting, duplicating, and secretarial services estimated at \$2,000.

If, during the course of the program, the terms of reference as set out in this proposal were significantly modified, we would re-negotiate the upset figure. Our usual billing arrangements are to bill monthly for actual time and expenses to-date.

Our Firm and Its Experience

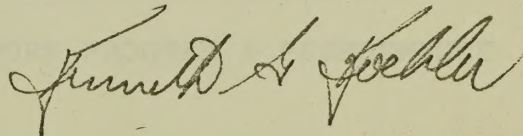
On July 1, 1974, the parent company of The Thorne Group Ltd., Thorne Gunn & Co., merged with the firm of Riddell Stead & Co. to form the Chartered Accounting firm of Thorne Riddell & Co. As a result of this merger the consulting arms of the two companies (The Thorne Group Ltd. and Riddell Stead & Associates Ltd.) have merged and the supplementary letters patent authorizing a name change have just been received. Consulting services will now be provided under the new name of Thorne Riddell Associates Ltd.

We feel that the experience we have gained in implementing MMMS as well as serving governments and their agencies at the Federal Provincial and Municipal levels will be of benefit. Attached as Appendix C are some examples of relevant consulting engagements.

We would be pleased to meet with the Selection Committee, at their convenience, for an oral presentation and discussion of our proposal.

Yours very truly,

THORNE RIDDELL ASSOCIATES LTD.



Kenneth G. Koehler

Director of Operations - Ontario.

Encl:

KGK:ck

PROGRAM PLAN & SCHEDULE

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CITY OF HAMILTON - MMMS IMPLEMENTATION SCHEDULE

	1975												1976			
	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY - OCT.
PROJECT PLANNING & MANAGEMENT																
PHASE 1 - ORGANIZATIONAL REVIEW																
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PHASE 11 - MONITORING SYSTEM OPERATION																

PROJECT PLANNING & MANAGEMENT

The planning and management of the project is a critical ingredient in the successful implementation of the maintenance management system. The creation of a receptive environment within your municipal organization will determine the acceptance and ultimate success of MMMS.

The Project Manager must maintain communications with the co-ordinator designated by the City of Hamilton and the Advisory Committee and be responsible for the successful implementation of the program. At the outset we believe that an announcement of the program, including the broad objectives and the kinds of changes that can be expected, will be necessary in preparing your organization for the implementation of MMMS. By explaining our role as consultants, your personnel will be aware of the need for the personal contact that can be expected with them during the program.

This function, comprising introduction, meetings, communications, etc., will be spread throughout the duration of the project and is expected to involve a total of 15 consultant days.

IMPLEMENTATION PROGRAM PHASESPhase 1 - Organizational Review

The organizational structure will be reviewed to determine its compatibility with respect to the requirements of MMMS. Modifications, if necessary, to ensure the effectiveness of the organization for the introduction of MMMS would be recommended and fully discussed with top management.

Position guides detailing the function, responsibility, authority, and key relationships for each managerial and supervisory position concerned with MMMS in the Street Services Department will be prepared. A formal organization chart depicting the position relationships will also be prepared.

This phase would required approximately 5 consultant days.

Phase 2 - Work Activity Definitions

The establishment of separate work activities would be determined by identifiable separate tasks and their importance in terms of annual cost.

This phase would be conducted at the outset, in discussion with operating personnel. The identification of activities applicable to the work performed in the City of Hamilton would be compatible with the master set of work activities in section 4 of the MMMS Implementation Manual.

There would be approximately 7 consultants days required for this phase.

Phase 3 - Establish Performance Standards

Performance standards (quality, quantity and productivity) would be established for the activities established in Phase 2. We would draw heavily on your present record system as well as available relevant data from other municipalities and the Department of Transportation and Communications.

Maintenance methods, procedures, and standards would be documented and reviewed with your staff.

When establishing performance standards it is not only necessary to set reasonable and proper standards, but also that the standards be considered as such by both management and the direct workers. Since your direct workers are represented by a Union, it is imperative that the co-operation of the Union be maintained. This would be an important function of the Project Manager and the advisory committee and must be recognized in the project planning phase.

This phase is expected to require approximately 15 consultant days.

Phase 4 - Field Scheduling & Reporting System

In conjunction with the operating superintendents and foremen, a work scheduling procedure and a field reporting system would be developed for day-to-day operations.

The work scheduling procedure must be flexible enough to permit revisions due to weather conditions or emergencies. This phase of the system must be simple in concept and operation to allow the foremen to plan crew activities and prepare weekly schedules with a minimum of time and clerical effort.

We believe that the most effective approach is to integrate the scheduling procedure with the work reporting procedure through the use of crew work cards that are used to schedule, issue, and report the work. The crew work card will be a travelling document and form the input to both the short term scheduling and work reporting systems.

The long range or master schedule would be developed from the annual work program and budget for use as a guide to preparing short term work schedules.

A principal objective of all the information developed and procedures used in MMMS is to provide the capability of planning and scheduling the individual activities at the field level. This phase of the MMMS implementation will have the greatest impact on the work force and their foremen and therefore requires the utmost care in implementation by ensuring that the tasks are both simple and fully explained.

It is our experience that the most successful systems require the least paper work from the first level supervision and workers. This would be a primary consideration in integrating MMMS into your operations.

This phase would require approximately 15 consultant days.

Phase 5 - Design & Implement Management
Reporting System

This phase would involve the designing of an information system to utilize the performance standards and unit cost information for comparison to actual operations at the field level.

Management reports would be introduced to provide senior management with a record that compares the budgeted work performance to the actual achievement both as to cost and to quantity of work performed. The concept of management by exception would be used extensively and would require senior management involvement in establishing allowable deviation limits. By using the approach, attention is focused on critical areas, and provides for corrective action to be taken.

This phase would require approximately 15 consultant days.

Phase 6 - Inventory Data

It is understood that a majority of the inventory information is currently available (with the exception of catch basins, culverts, etc.). Accordingly, this phase would consist of reviewing the data already collected, supervising the gathering of additional data as required, and adapting all of the information into a suitable format.

It is estimated that this phase would require approximately 8 consultant days.

Phase 7 - Unit Cost Data

Unit cost data would be developed based on the performance standards established and the experience gained from the field reporting system. As with other aspects of the MMMS, it is essential to develop data specifically for the operations in Hamilton.

The detailed methods and procedures used in this phase would be developed by the consultant and documented for use in updating the data to ensure its utility in future planning and controlling.

This phase would require approximately 10 consultant days.

Phase 8 - Winter Maintenance Planning

Winter maintenance expenditures for most municipalities are a large portion of the total streets maintenance budget.

The determining factor, winter weather severity, is uncontrollable, however it is not completely unpredictable.

The key element in the winter planning system would be to establish local weather statistics from available data and to set up methods to ensure collection of future data. Basic data available through such sources as the Federal Department of the Environment and local weather offices would be utilized.

Basic data would be used to develop planning values or quantity standards of the number of times per year it is expected to be necessary to plow, sand, salt, etc. When these values are used in conjunction with the road inventory data it will be possible to calculate the expected workload for each period in the season.

Equipment productivity would be determined and routings established separately for plowing, sanding and salting. Route plans would be established to reduce the amount of deadheading.

Although winter maintenance planning contains unique elements, the performance budget, master schedule, and reporting system all follow the same general format as the summer plan.

It is estimated that this phase would require approximately 20 consultant days.

Phase 9 - Annual Work Program & Performance Budget Procedures

From the detailed information prepared in the preceding phases, historical data, experience, and data from experienced gained in other municipalities, a planned work program would be prepared.

The planned work would relate to those activities constituting the major work requirements as covered in the activity lists.

The first step of the budgeting procedure would be to determine the planned work program by extending the planning work units by the summarized inventory amounts. Productivity standards would then be applied to the planned work quantities to determine the manpower, material, and equipment requirements.

An annual or master schedule of planned maintenance work would be set out by the period during which the work is planned to be accomplished. Labour requirements determined by period can then be examined and adjusted in order to reduce peaks and valleys. This process of manpower planning and levelling would assist in maintaining a consistent work force strength and reduce the requirement for excessive overtime, employment of casual labour, and temporary lay-offs. This phase of the management program should be attractive to the workers because it contributes to stability of employment level.

The performance budget showing the planned expenditures by activity for each period would be prepared for management and council approval. Since it is based on the expected work that is to be performed, management or council revisions can be made with the knowledge of the effect of the proposed change on the level of service provided and the involved cost. When approved, the performance budget becomes the objective of the Maintenance Department and is the basis for comparing the actual accomplishments with the plans. Both management and council now have a tool with which they can recognize significant variations in plans at intermediate times throughout the year and initiate corrective action.

This phase would require approximately 20 consultant days.

Phase 10 - Documentation of the System

We would provide the necessary reference documentation for the continued operation of the system.

The documentation would be prepared as the various phases are developed and implemented and therefore no specific consultant day estimate is included in this section.

Phase 11 - Monitoring System Operation

The Project Manager will monitor the operation of the MMMS during the implementation period and for an additional 6 month period following the target completion date of May 1, 1976.

The monitoring activity is included in the estimated Project Manager consultant days during the period up to complete implementation. Following target completion, we have made allowance for an additional 10 consultant days for routine monitoring and follow up.

RESUMES

C.P. BUETOW

A.R. DAVEY

K.G. KOEHLER

W.G. RATZ

J.L. SMITH

C.P. BUETOW, B.A. B.COMM.

Consulting Director

Mr. Buetow has supervised and participated in numerous assignments, mainly in the fields of management accounting, financial analysis and organizational reviews. He has served a wide range of industrial and institutional clients and has been particularly active in the municipal government and public utilities fields. Acting as project leader, he has been responsible for a major study of accounting and budgeting for the Municipality of Metropolitan Toronto, an annexation study for the City of Sydney, N.S. and an organization study for the new City of Cambridge undertaken for the Government of Ontario. He has participated in projects undertaken by engineering consultants, including a study of selected Cape Breton water utilities and a World Health Organization study of water supply, sewerage, drainage and solid waste systems for Greater Kabul, Afghanistan.

Mr. Buetow is the author of several published articles on systems, organization, office layout, training and audio-visual communications. He has been a speaker for the American Management Association, the Association for Systems Management, the Society of Industrial Accountants and the Engineering Institute of Canada.

Prior to joining Thorne Group Ltd., Mr. Buetow held a number of responsible positions with major companies in the oil, chemical, newsprint, retail and other fields.

A.R. DAVEY, C.A.

Senior Consultant

Mr. Davey is a member of the Institute of Chartered Accountants of Ontario.

As a consultant, Mr. Davey has specialized in the fields of financial management, cost control, management information and data processing systems, and governmental administrative and data processing systems. He has extensive experience in the governmental field in the development and implementation of various accounting and financial systems. He recently developed and directed the implementation of all financial systems for the new Regional Municipality of Ottawa-Carleton. In addition, Mr. Davey has been responsible for designing and implementing fleet management systems for both government and industrial clients.

KENNETH G. KOEHLER, B.COMM., M.B.A., C.A. C.M.C.

Director of Operations - Ontario

Mr. Koehler is a member of the Institute of Chartered Accountants of Ontario and the Institute of Management Consultants of Ontario. He holds Bachelor of Commerce and Master of Business Administration Degrees from the University of Toronto. In his post-graduate work he specialized in economics, financial planning and administration.

As a member of a national firm of Chartered Accountants, Mr. Koehler was responsible for the review and evaluation of financial, accounting, and administrative control systems in a wide range of manufacturing, financial, and public service organizations. Since joining the Thorne Group Ltd. in 1968, Mr. Koehler has been involved in many successful studies relating to organization and planning and control systems in diversified fields including manufacturing, printing and public service. He was involved in the development of an integrated budgetary and accounting control system for the Municipality of Metropolitan Toronto, and in the organization of the public works function under Regional Government in Sudbury. Mr. Koehler also participated in the design and development of MMMS field reporting system for the City of Sudbury. Another recent project involved the detailed design of accounting and reporting systems for utility services in Greater Kabul, Afghanistan.

WILLIAM G. RATZ, B.A.Sc., P.ENG., C.M.C.

Senior Consultant

Mr. Ratz holds a Bachelor of Applied Science Degree from the University of Toronto, and is a member of the American Institute of Industrial Engineers, Canadian Information Processing Society and the Canadian Operations Research Society.

Mr. Ratz has many years experience in Industrial Engineering and Information Processing in both industry and consulting.

As Corporate Systems Manager for 8 years Mr. Ratz planned and administered the development of a major integrated computer system serving five divisions of the company, and supporting the functions of production planning, material planning and inventory control, purchasing, shop scheduling and loading, hourly payroll (payment and cost distribution), and job costing. A comprehensive sales analysis and accounts receivable system was developed, to integrate with the general ledger system.

Mr. Ratz served as Design Engineering Manager and Manufacturing Engineering Superintendent. Two new manufacturing plants were planned under his technical direction, including the production planning and control systems for these plants.

While Systems Manager for a major Toronto Data Processing Centre, Mr. Ratz designed an integrated order entry, invoicing, accounts receivable, sales analysis and general ledger system to serve several manufacturing clients.

The experience of Mr. Ratz in integrating the Industrial Engineering and Information Processing disciplines forms an ideal background for ensuring successful integrating of MMMS into existing systems.

J.L. SMITH, B.A.Sc., P.ENG.

Senior Consultant

Mr. Smith holds a Bachelor of Applied Science Degree from the University of Toronto and is a member of the Association of Professional Engineers of Ontario.

Prior to management consulting, Mr. Smith held technical and management positions in the automotive and beverage industries. In these capacities he was involved in assignments involving productivity improvements, maintenance operations, production planning and control, quality control facilities studies, information systems, and economic feasibility studies.

As a management consultant, Mr. Smith has been involved in economic feasibility and industrial engineering studies. He has been heavily involved in municipal government studies in the areas of organization and maintenance studies.

He has been responsible for the implementation of the Municipal Maintenance Management System in the City of Sudbury, Regional Municipality of Sudbury, and County of Haldimand. These implementation programs included maintenance of roads and drainage systems and sewer and waterworks systems.

<u>Client</u>	<u>Name of Assignment</u>
Regional Municipality of York	Implementation of Municipal Maintenance Management System (Roads & Highways)
Regional Municipality of Durham	Implementation of Municipal Maintenance Management System (Roads & Highways)
City of Sudbury	Implementation of Municipal Maintenance Management System (Roads & Highways)
County of Halton	Implementation of Municipal Maintenance Management System (Roads & Highways)

RELEVANT ASSIGNMENTS

Ministry of Treasury, Economic and International Affairs	Organization Study for Creation of City of Hamilton
Regional Municipality of Waterloo	Special Assignment for Regional Council
Regional Municipality of York	Development of the Organization Structure, Studies in Part 1: The Design and Implementation of Acquisition and Administrative Systems
Regional Municipality of York	Study of Municipal Engineering Organization
Municipality of Metropolitan Toronto	Organization Study
Municipality of Metropolitan Toronto	Study of Subdividing and Expanding

RELEVANT CONSULTING ASSIGNMENTS

<u>CLIENT</u>	<u>NATURE OF ASSIGNMENT</u>
Regional Municipality of Sudbury	Implementation of Municipal Maintenance Management System (Roads & Drainage)
Regional Municipality of Sudbury	Implementation of Municipal Maintenance Management System (Sewer & Water)
City of Sudbury	Implementation of Municipal Maintenance Management System (Roads & Drainage)
County of Haldimand	Implementation of Municipal Maintenance Management System (Roads & Drainage)
Ministry of Treasury, Economics and Inter-governmental Affairs	Organization Study Re: Creation of City of Cambridge
Regional Municipality of Waterloo	Special Assignment for Regional Chairman
Regional Municipality of Ottawa-Carleton	Development of the Organization Structure, Staffing As Well As The Design and Implementation of Accounting and Administrative Systems
Regional Municipality of Sudbury	Study of Municipal Engineering Organization
Municipality of Metropolitan Toronto	Organization Study
Municipality of Metropolitan Toronto	Study of Budgeting and Accounting

<u>CLIENT</u>	<u>NATURE OF ASSIGNMENT</u>
Department of Transportation, State of New York	Development of Equipment Management Program
City of Richmond, Virginia	Development of Equipment Management Program
Trans-American Freight Lines, Detroit	Development of Equipment Management Program
Material Services Ltd., Detroit (Subsidiary of General Dynamics)	Development of Equipment Management Program
Railway Express Agency (REA) (Several U.S. Locations)	Development of Equipment Management Program
Dufferin Materials & Construction	Development of Equipment Management Program
Singer Sewing Machine Company, New York	Fleet Administration Manual
Steep Rock Iron Mines	Study on Vehicle Maintenance and Facilities
Government of Canada, Department of Transport	Airport Maintenance Studies for New Montreal Airport
World Health Organization (Procter & Redfern Interna- tional Limited-Prime Contractor)	Water Supply, Sewerage and Solid Waste Disposal for Greater Kabul, Afghanistan
Canadian Interantional Development Agency	Organization Study and Systems Review of The Ministry of Works and Other Ministries of Government of Jamaica
Borough of North York, Ontario	Renumeration Study for Members of Council, Selected Boards, Committees and Commissions

<u>CLIENT</u>	<u>NATURE OF ASSIGNMENT</u>
City of Sault Ste. Marie	Systems and Computer Feasibility Study
City of Sydney, Nova Scotia	Annexation Study
Oshawa Public Utilities Commission	Independent Review of Computer Feasibility Study and Monitoring of Implementation Program
North Bay Hydro-Electric Commission	Study of EDP Systems and Controls
Sudbury Hydro-Electric Commission	Studies Relating to Organization Structure, Finances, Budgets, Rate Structure, Administrative Systems, Salary Administration and Personnel Practices
Frontenac County Board of Education	Study of Administrative Systems and Procedures
The Metropolitan Toronto Separate School Board	Study of EDP Organization
Nipissing District Roman Catholic Separate School Board	Organization Study of Business Administration Function and Related Review of Job Classification and Salaries
Nipissing Board of Education	Study of Administrative Systems
Ottawa Board of Education	Systems Study

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